CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM ORDER NO. R5-2009-XXXX
FOR
SIERRA PACIFIC INDUSTRIES—MARTELL DIVISION FACILITY
CLOSURE, AND POST CLOSURE OPERATION AND
MAINTENANCE
AMADOR COUNTY

This Monitoring and Reporting Program (MRP) describes requirements for monitoring a wood waste landfill, an unlined leachate basin associated with the wood waste landfill, an ash disposal area, groundwater, surface water, leachate, and seeps in accordance with the requirements of Waste Discharge Requirements Order R5-2009-XXXX (Order). This MRP is issued pursuant to Section 13267 of the California Water Code. Sierra Pacific Industries Inc. (Discharger) shall not implement any changes to this MRP unless and until a revised MRP is issued by the Executive Officer.

The Discharger must comply with this MRP, the *Standard Provisions and Reporting Requirements* dated August 1997 (Standard Provisions), and Waste Discharge Requirements Order No. R5-2009- XXXX (WDRs). The Discharger must fully disclose any monitoring, sampling, and analysis performed at this facility as required in the Standard Provisions Section A.8. Failure to comply with this MRP constitutes noncompliance with the Water Code, which can result in the imposition of civil monetary liability.

A. MONITORING

The Discharger must conduct all monitoring in accordance with a Sample Collection and Analysis Plan (SAP) acceptable to the Executive Officer, and must include quality assurance and quality control standards as outlined in this MRP, the WDRs, and the Standard Provisions.

Title 27 §20415(e)(15) requires that the groundwater elevation be measured quarterly. The determination of quarterly groundwater elevations must begin **by October 2009.**

Groundwater sampling for field and monitoring parameters required under this MRP must be performed in January and July. All samples must be representative of the volume, nature, or matrix of material sampled. The time, date, and location of each sample must be recorded on the sample chain of custody form. If methods other than U.S. EPA-approved methods or *Standard Methods for the Examination of Water and Wastewater*, latest edition, are used, the exact methodology must be submitted for review and approval. All monitoring points must be sampled and analyzed for parameters and constituents of concern as indicated and listed herein. Unless otherwise approved by the Regional Water Board, any sampling and monitoring results must be reported. All relevant facts must be fully disclosed.

Constituents of Concern subject to monitoring under this MRP are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a waste management unit (Unit) (i.e., the wood waste landfill, unlined leachate basin, and ash disposal area). The Constituents of Concern are the field and monitoring parameters listed in Tables 1 through 6 for the specified medium and Table 7 for the analytes and analytical methods. All groundwater monitoring wells, leachate basin,

leachate, seeps, and surface water monitoring points must be sampled and analyzed for the Constituents of Concern as indicated in Tables 1 through 6. Required analytes and test methods are listed in Table 7.

Under an evaluation monitoring program established in 2007, the Discharger installed groundwater monitoring wells B-6R, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15, and B-16. In addition, in order to monitor the depth of groundwater within the waste at the ash disposal area, the Discharger installed four piezometers with a fifth piezometers scheduled to be installed in the near future: P-1, P-2, P-3, P-4, and P-5. At the completion of eight sampling events, this MRP may be re-evaluated and revised to eliminate the required monitoring of wells B-7, B-8, B-9, B-10, or B-12.

1. Monitoring Points

The monitoring system for evaluation, detection, and corrective action for this facility must include the following:

Monitoring Points

Media	Location / Identification Number
Groundwater	B-1, B-2, B-3, B-5, B6-R, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, B-15, B-16, LD-2A; and ash disposal area piezometers P-1, P-2, P-3; P-4, and P-5. Monitoring Well B-9 is the background well for the leachate basin.
Surface Water	Existing locations SW-1 (located adjacent to the open face of the wood waste landfill) and SW-2.
Leachate Basin	Leachate Basin; and
Leachate	Within the drainage course and just before the inlet to the leachate basin.

The Discharger must maintain its storm water monitoring program for industrial activities. The Discharger is regulated under Water Quality Order No. 97-03-DWQ and General Permit No. CAS000001 (General Permit) for Discharges of Storm Water Associated with Industrial Activities, and must submit monitoring data according to the General Permit.

2. Groundwater Monitoring

General

The Discharger must operate and maintain a groundwater monitoring system that complies with this MRP, the Standard Provisions, the WDRs, and a SAP. The Discharger must collect, preserve, transport, and analyze groundwater samples in accordance with a SAP that has been reviewed by, and received concurrence of, the Regional Water Board. Prior to initiating any new sampling, the Discharger must submit an addendum to its SAP to the Regional Water Board staff for review and approval. The monitoring system must be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of Title 27.

Installation of Any New Wells

Whenever any new wells (including groundwater, gas, soil vapor, piezometers, and similar) are proposed, the Discharger must submit a monitoring well installation work plan that must include the information required by the Regional Water Board. **60-days after installation,** the Discharger must submit a monitoring well installation report that includes the analytical results and well construction details. The monitoring well installation report must include the information required by the Regional Water Board. Whenever any new wells are installed, such wells must be incorporated into this MRP beginning with the quarter in which such wells are installed.

Groundwater Flow Rate and Directions

The Discharger must determine the groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored pursuant to this MRP. The Discharger states that groundwater monitoring well LD-2A is the only well at this site considered to be in an aquifer deeper than the uppermost aquifer; the groundwater flow rate and direction are not required for LD-2A.

Delineation of Extent and Boundaries of Groundwater Contamination

Currently, the southern extent and boundary of identified releases of contaminants has not been defined. Discharger must install and operate additional monitoring wells to accurately determine southern extent and boundary of contaminant plumes south of State Highway 88. The Monitoring Well Installation Work Plan for this monitoring shall be submitted to the Central Valley Regional Board for review by **30 November 2009**.

Sampling and Analysis

Groundwater samples must be collected from the existing wells and any additional wells or piezometers that may be installed at the facility in the future. Any groundwater sample obtained for monitoring must have a **turbidity of less than 10 NTUs**. For monitoring well B-10, a sample may be obtained when the pH, ORP, and specific conductance are relatively stable.

Samples must be collected and analyzed for the Constituents of Concern in accordance with the methods and frequency specified in the tables of this MRP. Organic Constituents of Concern must be analyzed for "total" concentrations. Filtering of organic samples is prohibited.

Providing that samples are obtained and documented under anoxic conditions, that the samples are obtained first, are immediately preserved and stored, and that a >10 micron polycarbonate membrane-type filter with uniform and sharp size cutoff is used, groundwater samples for metals as defined in Table 7 may be filtered. Pre-washing or conditioning of filters must be routinely performed and documented in the monitoring report. Further, the EPA has documented that there is a strong inverse correlation between turbidity and representativeness of samples, and that samples with the least disturbance (i.e., turbidity) produced the most reproducible samples irrespective of filtration.

The applicable inorganic Constituents of Concern must be evaluated with regards to the

cation/anion balance, and the results must be graphically presented using a Stiff diagram. Samples for the Constituents of Concern specified in Tables 1, 2, and 3 must be collected and analyzed in accordance with the methods listed in Table 7.

Table 1
Wood Waste Landfill Groundwater Monitoring Program

Wood Waste Landfill Groundwater Monitoring Wells
Wells B-1, B-2, B-3, B-6R, B-7, B-8, B-9, B-10, B-11, B-12, B-13, B-14, and LD-2A.

Field Parameters	**Units**	**Frequency**
Groundwater Elevation	ft. & hundredths, MSL	Quarterly
Temperature	^{o}C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	NTU	Semiannual

Monitoring Parameters	**Units**	**Frequency**
Total Dissolved Solids	mg/l	Semiannual
Total Suspended Solids	mg/l	Semiannual
Chemical Oxygen Demand	mg/l	Semiannual
General Minerals	mg/l	Semiannual
Dissolved iron and manganese	mg/l	Semiannual
Tannins & Lignins	mg/l	Semiannual

Sample wells B-1, B-2, B-3, B-6R, B-8, B-10, B-11, B-12, B-13, B-14, and LD-2A as follows:

Dixons and Furans	pg/l	Semi-annual (January and July)
Polynuclear Aromatic Hydrocarbons	ug/l	Semi-annual (January and July)

Sample wells B-7 and B-9 every 5-years beginning in **January 2010**, and thereafter every 5-years alternating between July and January**. The next sampling after January 2010 must occur in July 2015.**

Dixons and Furans	pg/l	5-years, beginning January 2009
Polynuclear Aromatic Hydrocarbons	ug/l	5-years, beginning January 2009

Table 2
Ash Disposal Area Groundwater Monitoring Program

Ash Disposal Area Groundwater Monitoring Wells and Piezometers
B-5, B-15, B-16 and piezometers P-1, P-2, P-3, P-4, and P-5.

Field Parameters	Units	Frequency
Wells B-5, B-15, B-16 and piezometers P-1 through P-5		
Groundwater Elevation	ft. & hundredths, MSL	Quarterly
Wells B-5, B-15, and B-16		
Temperature	^{o}C	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	NTU	Semiannual

Monitoring Parameters	Units	Frequency
Wells B-5, B-15, and B-16		
Total Dissolved Solids	mg/l	Semiannual
Chemical Oxygen Demand	mg/l	Semiannual
General Minerals	mg/l	Semiannual
Dissolved iron and manganese	mg/l	Semiannual
Tannins & Lignins	mg/l	Semiannual
Dixons and Furans	pg/l	Semi-annual
Polynuclear Aromatic Hydrocarbons	ug/l	Semi-annual

3. Wood Waste Landfill Leachate Monitoring

Title 27 defines leachate as any liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. It includes any constituents extracted from the waste and dissolved or suspended in the fluid. At this site, leachate is formed when rainwater contacts the open face of the wood waste landfill. This leachate contains soluble constituents extracted from the wood waste, including elevated concentrations of iron, manganese, calcium, total dissolved solids, and tannins and lignins. The leachate generated at the wood waste landfill traverses down an unlined surface water drainage course and into an unlined leachate collection basin. The Discharger must sample this leachate just before the inlet into the leachate collection basin.

Leachate samples must be obtained during the wet season that is defined as 1 October—30 April. Samples must be obtained during the first storm event, and a minimum of five additional storm events of the wet season that produces discharge into the drainage course with sufficient volume to obtain a sample.

Failure to obtain these samples is a violation of this Order. Samples must be collected, analyzed, and reported for the Constituents of Concern for all monitoring points assigned to the wood waste landfill leachate monitoring program in accordance with the methods and frequency specified in Table 3.

Table 3
Wood Waste Landfill Leachate Monitoring Program

Wood Waste Landfill Leachate Sampling Locations

The sample location must be within the drainage course and just before the inlet into the leachate collection basin.

Field Parameters	Units	Monitoring Frequency
Temperature	^{o}C	Once during the first storm event of the season, and a minimum of five additional times during the wet season.
Specific Conductance	µmhos/cm	
pH	pH units	
TDS	mg/l	

Monitoring Parameters		Monitoring Frequency
Total Dissolved Solids	mg/l	Once during the first storm event and once during any other storm event of the season that produces discharge into the drainage course.
Total Suspended Solids	mg/l	
Chemical Oxygen Demand	mg/l	
Dissolved metals	mg/l	
General minerals	mg/l	
Tannins and Lignins	mg/l	

4. Surface Water Monitoring

All surface water monitoring parameters must be analyzed for total concentrations, including organic and inorganic constituents. The Discharger must sample and analyze surface water at monitoring locations SW-1 and SW-2. Each surface water location must be sampled for two events **during the first hour of discharge during regular business hours** from:

(1) The first storm event of the wet season, and
(2) At least one other storm event in the wet season.

If no rain event occurred during a monitoring period, this must be so stated in the monitoring report.

Samples must be collected, analyzed, and reported for the Constituents of Concern for all monitoring points assigned to surface water monitoring, in accordance with the methods and frequency specified in Table 4.

Table 4
Surface Water Monitoring Program

Surface Water Sampling Locations
Samples to be obtained at locations SW-1 and SW-2

Field Parameters	**Units**	**Monitoring Frequency**
Temperature	^{o}C	Sample during the first hour of discharge during regular business hours from (1) the first storm event of the season, and (2) from at least one other storm event of the season.
Specific Conductance	µmhos/cm	
pH	pH units	
ORP	mv	
Monitoring Parameters		**Monitoring Frequency**
Total Dissolved Solids	mg/l	Sample during the first hour of discharge during regular business hours from (1) the first storm event of the season and (2) from at least one other storm event of the season.
Total Suspended Solids	mg/l	
Chemical Oxygen Demand	mg/l	
Total iron and manganese	mg/l	
General minerals	mg/l	
Tannins and Lignins	mg/l	

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5. Leachate Basin Liquids and Seep Monitoring

Leachate Basin Liquids

The leachate basin freeboard must be recorded weekly during the wet season (1 October—30 April) and monthly during the dry season (1 May—30 September). Whenever the leachate basin is dry, this must be reported in lieu of the freeboard. Analytical methods must be those listed in Table 7. Frequencies and parameters must be sampled and monitored as indicated in Table 5.

Seeps

Any leachate which seeps to the surface from the wood waste landfill, the unlined leachate basin, or the ash disposal area must be immediately sampled and analyzed for the Constituents of Concern, including the Field Parameters and Monitoring Parameters upon detection of any seep. Analytical methods must be those listed in Table 7. The quantity of leachate from any seep must be estimated and reported as Leachate Flow Rate (in gallons/day). After the initial sampling upon detection, any seep must be sampled and monitored at the frequencies listed in Table 6.

Table 5
Leachate Basin Liquids Monitoring Program

Field Parameters	Units	Frequency
Freeboard, pond	feet & inches	Weekly whenever liquids are present
Specific Conductance	µmhos/cm	Weekly whenever liquids are present
TDS	mg/L	Weekly whenever liquids are present
pH	pH units	Weekly whenever liquids are present
ORP	mv	Weekly whenever liquids are present
Monitoring Parameters	**Units**	**Frequency**
Total Dissolved Solids	mg/l	Semiannually (January and June
Chemical Oxygen Demand	mg/l	Semiannually (January and June
Biochemical Oxygen Demand	mg/l	Semiannually (January and June
General Minerals	mg/l	Semiannually (January and June
Dissolved metals	mg/l	Semiannually (January and June
Tannins & Lignins	mg/l	Semiannually (January and June)

Table 6
Seep Monitoring Program

Field Parameters	Units	Frequency
Leachate Flow rate, seep	gallons/day	On detection, then **weekly** thereafter
Temperature	^{o}C	On detection, then **monthly** thereafter
Electrical Conductivity	µmhos/cm	On detection, then **monthly** thereafter
pH	pH units	On detection, then **monthly** thereafter
Monitoring Parameters	**Units**	**Frequency**
Total Dissolved Solids	mg/l	On detection, then **quarterly** thereafter
Total Suspended Solids	mg/l	On detection, then quarterly thereafter
Chemical Oxygen Demand	mg/l	On detection, then quarterly thereafter
Biochemical Oxygen Demand	mg/l	On detection, then quarterly thereafter
General Minerals	mg/l	On detection, then quarterly thereafter
Dissolved metals	mg/l	On detection, then quarterly thereafter
Tannins & Lignins	mg/l	On detection, then quarterly thereafter

6. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger must conduct an inspection of the facility. The inspection must assess the condition of the groundwater monitoring equipment (including wells, etc.), any damage to the drainage control system, and must include the Standard Observations. Any necessary construction, maintenance, or repairs must be completed by **31 October**. By **15 November** of each year, the Discharger must submit an annual report describing the results of the inspection and repair

measures implemented, including photographs of any problems encountered and the repairs made.

b. Storm Events

The Discharger must inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. Necessary repairs must be completed **within 30 days** of the inspection. The Discharger must report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

B. WATER QUALITY PROTECTION STANDARD

1. Water Quality Protection Standard Report

a. For each waste management unit (Unit), the Water Quality Protection Standard must consist of all Constituents of Concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points for each monitored medium. For the Water Quality Protection Standard Report, the Units include the wood waste landfill, leachate basin, and the ash disposal area. The Water Quality Protection Standard for naturally occurring waste constituents consists of the constituents of concern, the concentration limits, and the point of compliance and all monitoring points. The Water Quality Protection Standard, or any modification thereto, shall be submitted in a report for review and approval.

b. The Water Quality Protection Standard report must:

i Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a Unit, or portion of a Unit. At minimum, this list must include the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.

ii Include a map (both hard copy and digital format) showing the monitoring points, including the background monitoring points, for the surface water monitoring program, the groundwater monitoring program, any identified seeps, and the leachate basin monitoring point. The map must identify each monitored waste management Unit's respective point of compliance as a line just outboard of the side(s) of the Unit that is/are downgradient with respect to direction of groundwater movement within the uppermost groundwater zone under that Unit (see Title 27 §20405).

iii Evaluate and determine the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

iv Include an electronic file with all historical and current laboratory analytical data in an Excel spreadsheet. The spreadsheet must include the location identifier (e.g., well number), results, units, method detection limits (MDLs), practical quantitation limits (PQL), trace concentrations, analyte, CAS number, analytical method number, sample date, and laboratory. A PDF file is not acceptable and will be rejected.

c. The Water Quality Protection Standard report must be signed and stamped by a California-registered civil engineer or geologist as meeting the requirements of Title 27, and as required in Section E.3, *Reporting Requirements*, of this MRP.

d. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the Water Quality Protection Standard.

2. Constituents of Concern

The Constituents of Concern include all the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The Constituents of Concern for all Units are those listed in Tables 1 through 6 for the specified monitored medium, and Table 7 for the analytes and analytical methods.

3. Concentration Limits

For a naturally occurring constituent of concern, the concentration limit for each constituent of concern must be determined as follows:

a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27(e)(8); or

b. By an alternate statistical method meeting the requirements of §20415(e)(8)(E) of Title 27.

On 15 June 2009, the Discharger submitted a Water Quality Protection Standard Report with proposed reference concentrations. On 20 August 2009, the Regional Water Board staff commented on the Discharger's Water Quality Protection Standard Report and required that the Discharger submit a revised report with staff's comments incorporated into the revised report. .

4. Monitoring Points

All monitoring wells established for the monitoring program must constitute the monitoring points for the groundwater Water Quality Protection Standard.

5. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.

6. Compliance Period

The compliance period for the wood waste landfill, unlined leachate basin, and ash

disposal area must be the number of years equal to the active life of the wood waste landfill and ash disposal area plus the closure period. The compliance period is the minimum period during which the Discharger must conduct a water quality monitoring program subsequent to a release from any Unit. The compliance period must begin anew each time the Discharger initiates an evaluation monitoring program. For this site, the compliance period is 53 years.

7. Background Monitoring Points

For the leachate basin, the background monitoring point is groundwater monitoring well B-9. The Discharger submitted its proposal for background monitoring wells on 12 December 2008. The Regional Water Board is in the process of reviewing the Discharger's proposal.

E. REPORTING REQUIREMENTS

1. Record Maintenance

The Discharger must retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records must be maintained throughout the life of the facility including the postclosure period. Such legible records must show the following for each sample:

a. Sample identification number, the monitoring point or background monitoring point from which it was taken, and the identity of the individual who obtained the sample;
b. Date, time, and manner of sampling;
c. Date and time that analyses were started and completed, and the name of the responsible personnel and laboratory performing each analysis;
d. Complete procedure used, any deviations from the procedure, and the method of preserving the sample;
e. Calculation of results; and
f. Results of analyses, and the method detection limit (MDL), practical quantitation limit (PQL), and trace quantities for each analysis.

2. Transmittal Letter and Certification

A transmittal letter explaining the essential points must accompany each report. The transmittal letter must include the WDRs Order number, and the date of the Standard Provisions. In addition, the transmittal letter must identify and discuss any violations found since the last report was submitted, and if the violations were corrected. The Discharger must reference any previously submitted time schedules for any corrective action, other enforcements, or evaluation monitoring. If no violations have occurred since the last submittal, this must be clearly stated in the transmittal letter. The transmittal letter must contain the penalty of perjury statement by the Discharger, or the Discharger’s authorized agent, as described in the Standard Provisions, General

Reporting Requirements. All reports and transmittal letters must be signed by persons identified below:

a. For a corporation*:* by a principal executive officer of at least the level of senior vice-president.

b. For a partnership or sole proprietorship*:* by a general partner or the proprietor.

c. A duly authorized representative of a person designated in a or b above if the authorization is made in writing by a person described in a or b of this provision; the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and the written authorization is submitted to the Board.

3. Report Prepared Under Supervision of Registered Geologist or Civil Engineer

In accordance with California Business and Professions Code Sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments must be performed by, or under the direction of, registered professionals competent and proficient in the fields pertinent to the required activities. All monitoring reports, sampling and analysis plans, and any other reports or plans must be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each monitoring report, other report, or plan submitted by the Discharger must contain the professional's signature and stamp of the seal.

4. Report of Seeps

The Discharger must report by telephone any seepage from any Unit **immediately** after it is discovered. A written report must be filed with the Regional Water Board **within seven days**, containing at least the following information:

a. A map showing the location(s) of seepage;
b. An estimate of the flow rate;
c. A description of the nature of the discharge (e.g., all pertinent observations and analyses);
d. Verification that samples have been submitted for analyses of the Constituents of Concern listed in Table 7 of this MRP, and an estimated date that the results will be submitted to the Regional Water Board; and
e. Corrective measures underway or proposed, and corresponding time schedule.

5. Reporting Schedule

The Discharger must submit reports with the data and information required in this MRP, the WDRs Order No. R5-2009-XXXX, and the August 1997 Standard Provisions and Reporting Requirements.

Monitoring Reports

Any reports for monitoring, sampling, and analysis required under this MRP must be submitted by the Date Due as shown on the table, below:

Monitoring Reports

Report Type	Sampling Frequency	Reporting Period	Date Due
Semiannual	Weekly, monthly, quarterly, semiannual, annual, and 5-year COC	1 January – 30 June	**31 July**
		1 July – 31 December	**31 January**

Other Reports

Report Type	Date Due
Annual Monitoring Summary Report	**31 January** of each year
Facility Monitoring Report	**15 November** of each year
Response to a Release	**As necessary**

6. Semiannual Monitoring Reports

Semiannual monitoring reports must include the following information:

a. Surface water monitoring results must be reported in the semiannual reports. If no surface water was present during the monitoring period, then this must be stated in the report.

b. The Discharger must determine and report the groundwater flow rate and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored pursuant to this MRP. Results must be reported semiannually, including the times of highest and lowest elevations of the water levels in the wells. Groundwater flow rate and direction of flow are not required for LD-2A, located in a deeper aquifer as stated by the Discharger.

c. In reporting the monitoring data, the Discharger must arrange the laboratory-reported data in tables so that the date, the constituents, the concentrations, units, qualifiers, and compliance or lack thereof is readily discernible. Showing readily discernable compliance or lack thereof must include shading a cell with gray fill or using bold, italics, and underlined font. The data must be summarized in such a manner so as to illustrate clearly the compliance with the WDRs or lack thereof. All historical and current groundwater, leachate, seep, and surface water analytical results must be tabulated and submitted.

d. Field and laboratory tests must be reported in each monitoring report. Weekly, monthly, quarterly, semiannual, and annual monitoring reports must be submitted in accordance with the schedule, above, for the monitoring period in which samples were taken or observations made.

e. A discussion of the monitoring results, including notations of any water quality

violations must precede any tabular summaries. Increasing and/or decreasing concentration trends must be identified.

f. For the wood waste landfill, each monitoring report must have a tabulated summary of the monthly total quantity of wood waste hauled off site during the reporting period, the annual quantity of wood waste hauled off-site for each year beginning with 1997, and the total cumulative quantity since the start of this Discharger's clean closure in 1997.

g. The Discharger must include a site map showing the facility features, existing and historical monitoring wells, direction of groundwater flow, and stormwater and surface water monitoring locations.

h. The Discharger must include hard copies of all analytical reports as signed by the laboratory's responsible personnel. Alternatively, the discharger may submit a CD with the analytical reports, provided that a summary table is provided that shows the sample location number with each analyte cross-referenced to its laboratory report number, and page number(s) in the laboratory report.

i. The Discharger must include the monitoring well data sheets, including the date and time, sampling mechanism or type of pump, purging and sampling method, and water disposal method.

j. The Discharger must provide a description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name, and any other observations).

k. Each monitoring report must include a compliance evaluation summary. The summary must contain at minimum:

1) Laboratory statements of results of all analyses evaluating compliance with requirements.

2) A technical evaluation of the effectiveness of the leachate monitoring and control facilities.

3) A technical evaluation of the effectiveness of the run-off/run-on control facilities.

4) The quantity and types of wastes discharged into the wood waste landfill, and the locations in the wood waste landfill where waste has been placed since submittal of the last such report.

5) A **summary and certification of completion** of all **Standard Observations** for the wood waste landfill and ash disposal area, for the perimeter of the wood waste landfill and ash disposal area, and for the receiving waters. Standard observations must be conducted **weekly** during the wet season (1 October to 30 April) and **monthly** during the dry season (1 May to 30 September). The Standard Observations must include:

<u>For the wood waste landfill, ash disposal area, and associated perimeters:</u>

a) Evidence of ponded water at any point on the facility (show affected area on map);

b) Evidence of odors - presence or absence, characterization, source, and distance of travel from source;

c) Evidence of erosion and/or of day-lighted refuse; and

d) Evidence of seeps and/or liquid leaving or entering the wood waste landfill and ash disposal area, estimated size of affected area, estimated flow rate, and color of liquids (show affected area on map).

6) For each monitoring point and background monitoring point addressed by the report, a description of:

a) The time of water level measurement;

b) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

c) The method of purging (the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; the calibration of the field equipment; results of the pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water) to remove of the water that was in the well bore while the sample was being taken;

d) The type of pump - or other device - used for sampling, if different than the pump or device used for purging;

e) A statement that the sampling procedure was conducted in accordance with the approved SAP;

f) A discussion of upward trends in any constituent concentration; and

g) A discussion of violations

k. For non-naturally occurring organic Constituents of Concern (e.g., tannins and lignins, volatile organic compounds, polynuclear aromatic hydrocarbons, chlorinated phenols, total petroleum hydrocarbons, BTEX, and etc), the Discharger must conclude that a release is tentatively indicated if the data for any Monitoring Point contains either:

a) Two or more qualifying constituents that equal or exceed their respective MDLs, or

b) One qualifying constituent which exceeds its PQL

Specifically for dioxins and furans, the specified non-statistical method for evaluation of dioxin and furan monitoring data is the presence of two or more dioxin or furan constituents above its respective minimum level as described in EPA Method 1613B.

Based on the above, if the Discharger determines that there is measurably significant evidence of a release from the wood waste landfill, leachate basin, or ash disposal area at any monitoring point, the Discharger must **immediately** implement the requirements of the **Standard Provisions', Response to a Release.**

7. Annual Monitoring Report

The Discharger must submit an **Annual Monitoring Summary Report** to the Regional Water Board staff covering the reporting period described in the table, above. This report must contain:

a. All Constituents of Concern must be graphed so as to show the concentrations and historical trends at each monitoring point and background monitoring point for all historical samples. Each such graph must plot the concentration of one constituent for the period of record for monitoring points or background monitoring point, at a scale appropriate to show trends or variations in water quality. Each concentration line for a specific well must be readily discernable from that of any other well's concentration line. The graphs must plot each laboratory-reported datum, and must **not** plot mean values. For any given constituent or parameter, the scale for background plots must be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.

b. All historical monitoring data, including all data for the previous year, must be submitted in tabular format and in a digital file format (e.g., an electronic file with an Excel spreadsheet) acceptable to the Regional Water Board. The Regional Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27 CCR Section 20420(h)], in that this facilitates periodic review by the Regional Water Board. The electronic Excel spreadsheet must include the location identifier (e.g., well number or other monitoring point), analytical results, units, MDLs, PQLs, trace concentrations, analyte, CAS number, analytical method number, sample date, and laboratory. The acceptable format is shown below:

Sample Location ID	Date Sampled	Analyte	Result	PQL	MDL	Qualifier	Units
Location ID #1	Mm/dd/yy	Analyte 1	.004	.005	.0025	J	mg/L
Location ID #1	Mm/dd/yy	Analyte 2	ND	.005	.0025		mg/L
Location ID #1	Mm/dd/yy	Analyte 3	40	25	12		ug/L
Location ID #2	Mm/dd/yy	Analyte 1	.6	.005	.0025		mg/L
Location ID #2	Mm/dd/yy	Analyte 2	10	.005	.0025		mg/L
Location ID #3	Mm/dd/yy	Analyte 1	.6	.005	.0025		mg/L
Location ID #3	Mm/dd/yy	Analyte 3	26	25	12		ug/L

c. A comprehensive evaluation and determination of the Discharger's compliance record, and the result of any corrective actions taken or planned, which may be needed to bring the Discharger into full compliance with the WDRs.

d. The groundwater flow rate and direction, including the dates of highest and lowest elevations of the water levels in the wells.

e. Hydrographs of each well must be submitted annually showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well must show the cumulative quarterly data.

f. The applicable Constituents of Concern must be evaluated with regards to the cation/anion balance, and the results must be graphically presented annually using a Stiff diagram. Plots of each well must be prepared semiannually and submitted annually.

g. Tabulated data showing the annual historical volume of material extracted and excavated out of any waste management unit (i.e., the wood waste landfill, ash disposal area, and Leachate Basin) and transported off-site.

h. Tabulated data for the current calendar year showing the monthly and cumulative total quantity of any extracted material that has been transported off-site.

i. A written summary of the monitoring results, indicating any changes made or observed since the previous annual report.

j. A discussion and evaluation of any statistically increasing/decreasing trends in constituent concentrations at any monitoring well must be provided.

k. Annually beginning with the report due **31 January 2010**, the Discharger must list in tabular format all groundwater monitoring wells (both historical and existing), depth of boring, the horizontal survey coordinate, the vertical survey coordinate, the surveying reference datum (e.g., NAD 83, NVD 88, etc), the date installed, and the date decommissioned.

l. The Discharger must include all information required to be reported by the Standard Provisions, this MRP, and the Waste Discharge Requirements.

m. Beginning with the 2010 annual report, a topographic map showing the remaining volume of waste must be included. Thereafter, a revised topographic must be included every three years (i.e. 2010, 2013, 2016, etc) that shows the current volume of waste remaining in the wood waste landfill.

Ordered by: _____
PAMELA C. CREEDON, Executive Officer

_____
(Date)

TABLE 7 CONSTITUENTS OF CONCERN AND ANALYTICAL METHODS*

Field Parameter	Method
Specific conductance	Calibrated field instrument
pH	Calibrated field instrument
Turbidity	Calibrated field instrument
ORP/Dissolved oxygen	Calibrated field instrument
TDS	Calibrated field instrument with conversion factor approved by Regional Water Board

Monitoring Parameter	Method
Metals, Dissolved**	
Iron	EPA 6020
Manganese	EPA 6020
Arsenic	EPA 7061
Mercury	EPA 7470
General chemistry	
Specific conductance	EPA 120.1
Tannins & Lignins	SM 5550B
Chemical Oxygen Demand	EPA 410.4
Biochemical Oxygen Demand	SM5210B
Total Dissolved Solids	SM2540C
Total Suspended Solids	SM2540D
General minerals	
Chloride, total	EPA 300
Sulfate, total	EPA 300
Carbonate, total	2320B
Bicarbonate, total	2320B
Calcium**	EPA 6020**
Magnesium**	EPA 6020**
Sodium**	EPA 6020**
Potassium**	EPA 6020**

Polynuclear Aromatic Hydrocarbons, Selective Ion Monitoring (SIM) USEPA Method 8270C

Naphthalene
Pyrene
Acenaphthene
Fluorene
Phenanthrene
Anthracene
Fluoranthene
Benzo(a)anthracene
Chrysene
Benzo(b)fluoranthene
Benzo(k)fluoranthene
Benzo(a)pyrene
Indeno(1,2,3-c,d)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene

TABLE 7 CONSTITUENTS OF CONCERN AND ANALYTICAL METHODS*

Tetra- through Octa-Chlorinated Dibenzodioxins and Dibenzofurans (dioxins/furans), USEPA Method 1613B, Total Concentrations

2,3,7,8-TCDD
Total TCDD
2,3,7,8-TCDF
Total-TCDF
1,2,3,7,8-PeCDD
Total-PeCDD
1,2,3,7,8-PeCDF
2,3,4,7,8-PeCDF
Total-PeCDF
1,2,3,4,7,8-HxCDD
1,2,3,6,7,8-HxCDD
1,2,3,7,8,9-HxCDD
Total-HxCDD
1,2,3,4,7,8-HxCDF
1,2,3,6,7,8-HxCDF
1,2,3,7,8,9-HxCDF
2,3,4,6,7,8-HxCDF
Total-HxCDF
1,2,3,4,6,7,8-HpCDD
Total-HpCDD
1,2,3,4,6,7,8-HpCDF
1,2,3,4,7,8,9-HpCDF
Total-HpCDF
OCDD
OCDF

Acronyms:

TCDD = Tetrachlorodibenzo-*p*-dioxin;
TCDF = Tetrachlorodibenzofuran;
PeCDD = Pentachlorodibenzo-*p*-dioxin;
PeCDF = Pentachlorodibenzofuran;
HxCDD = Hexachlorodibenzo-*p*-dioxin;
HxCDF = Hexachlorodibenzofuran;
HpCDD = Heptachlorodibenzo-*p*-dioxin;
HpCDF = Heptachlorodibenzofuran;
OCDD = Octachlorodibenzo-*p*-dioxin
OCDF = Octachlorodibenzofuran

* Constituents of Concern must be prepared and analyzed for "total" concentrations unless otherwise approved by the Regional Water Board.

** Dissolved metals are to be obtained with a >10 micron filter as required under this Monitoring and Reporting Program. Calcium, magnesium, sodium, and potassium may be field-filtered with a >10 micron filter as required under this Monitoring and Reporting Program.